

PAPERS READ.

NOTES ON A COLLECTION OF FISHES FROM THE BURDEKIN AND
MARY RIVERS, QUEENSLAND.

BY WILLIAM MACLEAY, F.L.S., &C.

In September of last year the Trustees of the Australian Museum sent Mr. Alexander Morton to the Burdekin River for the express purpose of collecting and investigating the fishes of that river. The idea of making such an investigation was suggested some years ago by Professor Owen, who thought that a search in some of the inter-tropical rivers of Australia might lead to the discovery of existing species of palaeichthyan forms.

No such ancient fishes were found, still the collection, which I have looked over and named at the request of the Trustees of the Museum, is not without interest. Mr. Morton was well supplied with nets of various kinds, lines, dynamite, and every appliance for catching or trapping fish that could be procured, and I think it will be found that he managed to secure, during his short stay on the river, about all the varieties of fishes inhabiting its waters.

Mr. Morton's operations were confined to two very distant parts of the river. The first few weeks he was engaged in fishing the river near its mouth, but was unable to extend his search beyond the first rapids—a distance only of 15 miles from the sea—though for some distance below the falls the water was quite fresh and the current strong. The fishes found in this part of the river were, as will be observed, of a mixed character—some undoubtedly sea fish, others salt water fish, but habitually entering rivers, and a few strictly fresh water species. The only other part of the river visited by Mr. Morton was about 200 miles higher up, at or near Charters Towers, where of course there could be nothing but fresh water fishes.

The fishes from the Mary River were all collected in the vicinity of Maryborough. I make no attempt in the following notes to give synonyms, and the references to each species are limited to a few of the most useful and most accessible :—

PERCIDÆ.

1. LATES DARWINIENSIS. Macl.

Proc. Linn. Soc., N. S. Wales, Vol. 2 p. 345.

This fish was only found in Lillesmere Lagoon, a large sheet of fresh water on the Lower Burdekin, communicating with the river only in high floods. Probably this fish sometimes goes to the sea.

2. PSEUDOLATES CAVIFRONS. All. & Macl.

Proc. Linn. Soc., N. S. Wales, Vol. 1, p. 262, Pl. 3.

Hab. Lillesmere Lagoon, and in salt water, Lower Burdekin.

It is said to attain a gigantic size.

3. SERRANUS ESTUARIUS. n. sp.

D. 11/14, A. 3/8. L. lat. 70.

Head considerably longer than the height of the body; space between the eyes slightly convex, and more than the diameter of the orbit, distance of snout from eye about the same. The teeth are not large, the lower jaw projects slightly, the maxillary extends behind the vertical from the posterior margin of the eye. The præoperculum is roughly toothed at the angle, the operculum is armed with two spines, the tail is rounded. Colour brownish with numerous large spots and blotches of darker brown; fins dark, all with large whitish spots, except the pectorals. One specimen, length 16 inches, taken in the Mary River, but evidently a salt water fish. It closely resembles *Serranus Salmonoides*. Cur & Val.

4. APOGONICHTHYS GILLII. Steind.

Macl. Cat. Fishes, Proc. Linn. Soc., N. S. Wales, Vol. 5, p. 347.

Burdekin River, a fresh water fish, found also in Cox's River, N. S. Wales.

5. OLIGORUS MACQUARIENSIS. Cur. & Val.

Macl. Cat. Fishes Proc. Linn. Soc., N. S. Wales, Vol. 5, p. 352.

Mary River. I cannot detect any difference between this fish and the well known "Cod" of our western rivers.

6. THERAPON TRUTTACEUS. Macl.

Cat. Fishes Proc. Linn. Soc., N. S. Wales, Vol. 5, p. 366.
Mary River, fresh water lagoon.

7. THERAPON PERCOIDES. Gunth.

Macl. Cat. Fishes Proc. Linn. Soc., N. S. Wales, Vol. 5, p. 362.
Lillesmere Lagoon and Upper Burdekin.

8. THERAPON LONGULUS. Macl.

Cat. Fishes Proc. Linn. Soc., N. S. Wales, Vol. 5, p. 367.
Lillesmere Lagoon.

9. THERAPON FULIGINOSUS. n. sp.

D. 12/13. A. 3/9. L. lat. 52.

The height of the body is more than one-third of the total length, the length of the head about one-fourth. The head is wide at the base, and rounded at the snout, the profile descending in a rather concave sweep, the lips are fleshy, the mouth reaches to below the anterior margin of the eye, the maxillary shows largely above and behind the intermaxillary; the eye is large and nearly two diameters distant from the snout; the cheek is covered with small fixed little-imbricate scales; the præoperculum is uniformly rounded and finely serrated, the operculum has two spines, the lower one large and flat. The first spine of the dorsal fin is short, the second less so, the rest pretty uniform; the spines of the anal are of moderate thickness, the third a little the longest; the soft dorsal and anal are rounded behind; the caudal fin is slightly emarginate. The colour is dull black all over, with the tip of the tail slightly edged with a lighter hue. Upper Burdekin.

A thick heavy fish, attaining a length of 15 inches, and seemingly abundant.

10. THERAPON PARVICEPS. n. sp.

D. 13/10. A. 3/9. L. lat. 52.

Height of body about one-third of the total length, length of head less than one-fourth; space between the eyes broad and convex, head terminating in a small round muzzle; mouth very small; maxillary distinctly visible, triangular, and not nearly extending to beneath the eye. Eyes rather small, more than two diameters apart, and

distant from the snout about the same; præorbital not serrated, four series of scales on the cheek; præoperculum without scales on the limb, and strongly serrated posteriorly, operculum with two points, the lower strong and flat; the coracoid has about twelve strong serrations; the suprascapula about six. The first dorsal spine is small, the second larger, the fourth and fifth are the longest, the thirteenth not longer than the preceding one, and much shorter than the soft rays; the third anal spine is longer and more slender than the second: the caudal fin is deeply emarginate, the lobes pointed. Colour silvery, with a darkish centre to each scale, the fins blackish. Length eight inches. Upper Burdekin.

11. *DIAGRAMMA AFFINE*. Gunth.

Macl. Cat. Fishes Proc. Linn. Soc. N. S. Wales, Vol. 5, p. 370.
Lower Burdekin. A salt water fish.

12. *DIAGRAMMA LABIOSUM*. n. sp.

D. 10/24. A. 3/7. L. lat. 95. L. transv. 18/30.

Height of body one-third of the total length; length of head less than one-fourth of the same; lips smooth, fleshy, and of a pale colour; eye of moderate size, distant about twice its diameter from the point of the snout; præoperculum straight and finely toothed on the posterior limb, rounded and sparsely serrated at the angle. Lateral line straight; scales small, firmly adherent and etenoid; those on the head and on the body above the lateral line smaller than those on the rest of the body, and appearing to have numerous minute scales fastened upon them. The first dorsal spine is rather less than half the length of the second, from the second backwards the fin gets gradually lower to the soft dorsal, which again gradually becomes higher to the extremity; the pectorals are short; the ventrals pointed; the anal has the first spine short, the second long and slight, the third still longer and slight; the caudal slightly emarginate. The general colour is a dark silvery bluish grey; the dorsal and anal fins tipped with black, and the soft dorsal and caudal densely spotted with brown. Length, 12 inches.

Wide Bay. A sea fish.

13. GERRES FILAMENTOSUS. Cur. and Val.

Bleek Atl. Ichth. Perc. p. 124, tab. 78, fig. 3. Macl. Cat. Fishes Proc. Linn. Soc. N. S. Wales, vol. 5, p. 379.

Lower Burdekin, Salt water.

SQUAMIPINNES.

14. SCATOPHAGUS MULTIFASCIATUS.

Richards. Voy Ereb. and Terr. Fishes, p. 57, pl. 35, figs, 4-6
Macl. Cat. Fishes Proc. Linn. Soc. N. S. Wales. Vol. 5, p. 396.

Lower Burdekin. Salt water.

SPARIDÆ.

15. CHRYSOPHRYS HASTA. Bl.

Bleek Atl. Ichth. Perc. Tab. 67, fig 3. Macl. Cat. Fishes Proc. Linn. Soc. N. S. Wales, vol. 5, p. 418.

Lower Burdekin. Salt water.

SCORPÆNIDÆ.

16. CENTROPOGON ROBUSTUS. Gunth.

Cat. Fishes, 2 p. 128. Macl. Cat. Fishes Proc. Linn. Soc. N. S. Wales, vol. 5, p. 436.

Mary River. Fresh water. This fish is found in most, if not all, the rivers of the east coast of New South Wales.

POLYNEMIDÆ.

17. POLYNEMUS TETRADACTYLUS. Russ.

Gunth. Cat., 2, p. 329.—Cant. Mal. Fishes, p. 25.

Lower Burdekin—in salt water.

Mr. Morton informs me that this fish visits the estuary of the Burdekin at certain seasons in large shoals, and is much prized as an article of food. It is salted and dried in considerable quantity by the Chinese curers, and readily sold throughout the towns and mining villages at 6d. per lb. It is found all over the Eastern seas. Dr. Cantor, in his Catalogue of Malayan Fishes, p. 26, says of it:—"It is highly valued as an article of food, its flavour being compared with that of salmon." The same author informs us that this fish is also used by the Chinese in the Straits Settlement in

the preparation of a very favourite condiment. The air-bladder of this species will probably be found, like that of *P. plebejus* and *indicus*, to give a profitable yield of isinglass. It is said to attain a length of 4 feet.

SCLENIDÆ.

18. CORVINA ARGENTEA. n. sp.

D. 10, 1/29; A. 2/7. L. lat. 52.

Height of body, about $3\frac{1}{2}$ times in the total length; length of head, about four times in the same; snout obtuse, convex, rounded, the jaws equal, the maxillary extending to behind the middle of the eye, which is large and about its own diameter distant from the snout. An outer series of strong, curved, sharp teeth in the upper jaw. Præoperculum very slightly and distantly serrated; suprascapula crenulated; coracoid entire. The first dorsal spine is minute, the second and third very high, the other spines becoming gradually lower to the tenth, which is very small; the second anal spine is very large, nearly as long as the first ray; the tail is rather pointed. Colour, silvery all over, the extreme edge of the spinous dorsal fin is black.

Lower Burdekin, in salt water.

This is also an abundant and valuable fish, and is probably like its congeners in the Indian seas, a yielder of isinglass.

CARANGIDÆ.

19. CARANX GEORGIANUS. Cur. and Val.

Richards. Voy. Ereb. and Terror Fishes, p. 135, pl. 58, figs. 1-3. Macl. Cat. Fishes, Proc. Linn. Soc. N.S.W., Vol. 5, p. 533.

Lower Burdekin; salt water.

20. CARANX COMPRESSUS. n. sp.

D. 7, 1/21; A. 2, 1/21. L. arm. 45.

The height of the body is contained $3\frac{1}{2}$ times in the total length. Body very compressed, the back from the dorsal fin to the snout forming a very sharp, narrow ridge. Mouth oblique, the maxillary broad and triangular at its extremity, fitting into an emargination of the præorbital, and extending to below the anterior

margin of the eye. Eyes moderate, each about one diameter distant from the central ridge of the head. A single series of short, sharp teeth in each jaw, numerous teeth on the vover and palatine bones. The lateral line becomes straight and armed beneath the third dorsal ray, the armature at first slight, becoming tolerably strong towards the tail. Colour silvery, the opercular spot large and conspicuous; the anal and caudal fins are yellowish. In one of two specimens before me, the rays of the dorsal and anal fins terminate in long filaments, probably a sexual difference. Length, 9 inches.

Lower Burdekin, salt water.

21. CHORINEMUS LYSAN FORSK.

Macl., Cat Fishes, Proc., Linn. Soc., N. S. Wales, Vol. 5, p. 543.

Lower Burdekin. Salt water.

22. CHORINEMUS TOLOO. Cur. and Val.

Macl., Cat Fishes, Proc., Linn. Soc., N. S. Wales, Vol. 5, p. 544.

Lower Burdekin. Salt water.

23. EQUALA EDENTULA. Bl.

Richards, Voy., Ereb. and terr., Ichth., p. 137, pl. 59, fig. 12-14.

Macl., Cat. Fishes, Proc., Linn. Soc., N. S. Wales, Vol. 5, p. 549.

Lower Burdekin. Salt water.

SCOMBRIDÆ.

24. CYBIUM SEMIFASCIATUM, n. sp.

D. 16/17/viii. A. 2/19/ix.

Height of body about one-fifth of the total length, and equal to the length of the head. Snout very pointed, mouth oblique, teeth strong, compressed, triangular and distant, numbering about eight on each side above and below. Head between the eyes broad and flat; the maxillary extends beyond the vertical from the middle of the eye. The lateral line is wavy on its posterior portion, but

scarcely curved. There is a short skinny keel on the side of the tail, with a slightly oblique one a little behind it above and below, the lobes of the caudal fin very long and pointed. Colour bluish silvery grey, lighter beneath, with twelve or more blackish equidistant vertical bands on each side. Length 12 inches.

Lower Burdekin. Salt water.

COTTINA.

25. PLATYCEPALUS MORTONI, n. sp.

D. 8/13. A. 12.

The length of the head is one-fourth of the total length, its width between the præopercular spines seven-eighths of its length; the upper surface of the head is quite flat, the ridges being very slight and unarmed. The eyes are two diameters from the snout, and one diameter apart. Two moderate præopercular spines, the upper shorter than the lower. Lateral line smooth. Colour above mottled dark brown, beneath yellow, the soft dorsal rays and upper half of the caudal fin spotted with black. Length 16 inches.

Lower Burdekin. Salt water.

The affinity of this species is to *P. insidiator*, from which it differs in the greater width of head, in the number of the anal rays, and in the differently marked tail.

GOBIIDÆ.

26. PERIOPHTHALMUS AUSTRALIS. Casteln.

Macl., Cat Fishes, Proc. Linn. Soc., N. S. Wales. Vol. 5, p. 614. Burdekin and Mary Rivers, in Mangrove Creeks.

27. ELEOTRIS PLANICEPS. n. sp.

D. 6. 1/8. A. 1/9. L., lat. 32.

Nine series of scales between the origin of the second dorsal fin and the anal. Height of body one-fourth of the total length, back from the second dorsal to the snout very flat, head scaly to the snout, the scales larger than those on the body, the eyes are about five diameters apart, the maxillary does not quite reach to the vertical from the anterior margin of the eye. Colour, brownish black, a little lighter on the belly. Length, 11 inches.

Lillesmere Lagoon, Burdekin River.

In many respects this species resembles *E. aporos*. I cannot find, however, any trace of the streaks on the cheeks, so conspicuous in the last named fish.

ATHERINIDÆ.

28. ATHERINICHTHYS MACULATUS. n. sp.

D. 7. 1/8. A. 1/7. L., lat., 32. L., tr., 8.

Elongate, slightly compressed; height of body about seven times in the total length. Snout pointed, mouth very small, protractile; head broad and flat between the eyes, the space equal to the diameter of the eye, which is very large; præoperculum short with a double smooth edge. The ventral fin commences opposite the termination of the pectorals; the first dorsal commences opposite the middle of the ventrals, and the soft dorsal and anal opposite one another, and of equal size. The colour is silvery, with a black spot in the middle of each scale, giving the appearance of eight interrupted black lines along each side of the body, there is also a blackish band from the snout through the eye to the base of the pectoral fin. Length, 3 inches.

Lillesmere Lagoon, Burdekin.

MUGILIDÆ.

29. MUGIL WAIGIENSIS. Quoy and Gaim.

Macl., Mugil., Aust. Proc. Linn. Soc., N. S. Wales, Vol. 4, p. 420.

Lower Burdekin. Salt water.

This fine mullett which rivals in size and excellence *M. grandis*, seems to be found along the whole coast of Queensland. I have specimens from Port Darwin. I found it abundant at Cape York in July 1875, and Mr. Morton found it in shoals in the Lower Burdekin, where it is extensively salted by Chinese curers, and sold readily at 6d. per lb.

A number of this fish salted and dried by Mr. Morton, were I believe, taken by Mr. Ramsay to the London Fisheries Exhibition.

30. MUGIL DOBULA. Gunth.

Macl. Mugil. Aust. Proc. Linn. Soc. N. S. Wales, vol, 4, p. 414.
Burdekin and Mary Rivers. Fresh and brackish water.

This fish is found in all or nearly all the rivers of New South Wales, on the eastern water shed.

31. MUGIL RAMSAYI. n. sp.

D. 4. 1/8, A. 3/1. L. lat. 36, L. tr. 9-10.

The height of the body is one-fourth, and the length of the head is one-sixth of the total length. Body somewhat compressed, about equally and slightly convex above and below. Head convex between the eyes; snout short, convex, obtusely pointed; lips thin, very densely and minutely ciliated; no teeth; bony tubercles on the palate; maxillary small, but visible along its whole length, and not reaching to the vertical from the anterior margin of the eye. Eyes moderate, without adipose membrane, distant about one of their diameters from the snout, and more than two diameters from one another; the preorbital is finely crenulated above the maxillary. The pectoral fins are about as long as the head, with a dark spot at the insertion of the spine, and a pointed scale in the axil; the ventrals are situated below the middle of the pectorals; the first dorsal above the posterior half of the ventrals; the anal commences perceptibly in advance of the soft dorsal; and the caudal is slightly emarginate. Colour silvery all over, with a bluish tint on the back. Length, 8 inches.

Burdekin River, in brackish water.

SILURIDÆ.

32. NEOSILURUS HYRTLII. Steind.

Mac. Cat. Fishes, Proc. Linn. Soc. N. S. Wales, vol. 6, p. 208.
Mary River, in fresh water.

33. COPIDOGLANIS TANDANUS. Mitchell.

Mac. Cat. Fishes, Proc. Linn. Soc. N. S. Wales, vol. 6, p. 205.
Mary River, in fresh water.
Found also in all the rivers of the Murray system.

34. *ARIUS AUSTRALIS*. Gunth.

Macl. Cat. Fishes, Proc. Linn. Soc. N. S. Wales, vol. 6, p. 213.
Burdekin and Mary Rivers, in lagoons.

SCOMBRESOCIDÆ.

35. *BELONE KREFFTHII*. Gunth.

Macl. Cat. Fishes, Proc. Linn. Soc. N. S. Wales, vol. 6, p. 242.
Burdekin River, in fresh water lagoons.
A fine fish, attaining a great size.

CLUPEIDÆ.

36. *ENGRAULIS HAMILTONI*. Gray.

Gunth. Cat. Fishes, vol. 7, p. 395.
Lower Burdekin in shoals, Oct. 1882. Salt water.
The largest and finest species of anchovy I have ever seen,

37. *CHATOESSUS EREBI*. Gunth.

Macl. Aust. Clup., Proc. Linn. Soc. N. S. Wales, vol. 4, p. 368.
Lower Burdekin, in fresh water.

38. *CHATOESSUS ELONGATUS*. n. sp.

D. 14, A. 19, L. lat 42.

The height of the body is one-third of the length without the caudal fin, and is a little more than the length of the head. The eye which is two-thirds hidden by an adipose membrane, is distant from the point of the snout about one and a-half of its diameter; the profile of the head is longer and flatter than in *C. Erebi*. The abdomen is strongly serrated along its whole length, the scales are not deciduous. The last dorsal ray reaches to the commencement of the caudal fin; the ventrals commence opposite the third ray of the dorsal. The colour is silvery, with the back and fins darker. Length, 11 inches.

Lagoons, Mary River, in fresh water.

39. *CLUPEA SUNDAICA*. Bleek.

Atl. Ichth. Clup., p. 105, tab. 271, fig. 5.
Lower Burdekin in salt water.

A full account of this valuable herring will be found in my monograph of the Clupeidæ of Australia, published in the 4th volume of our Society's Proceedings.

40. *ELOPS SAURUS*. Linn.

Macl. Aust. Clup. Proc. Linn. Soc. N. S. Wales, vol. 4, p. 382.
Lower Burdekin, in salt and fresh water.

41. *MEGALOPS CYPRINOIDES*. Brouss.

Macl. Aust. Clup. Proc. Linn. Soc. N. S. Wales, vol. 4, p. 383.
Lower Burdekin, in lagoons.

This herring is frequently kept in tanks in and about Pinang, where they rapidly multiply and fatten.

42. *CHANOS SALMONEUS*. Bl.

Macl. Aust. Clup. Proc. Linn. Soc., N. S. Wales, Vol. 4, p. 383.
Lower Burdekin in fresh and salt water.

This, the finest of all the Herring tribe, both as regards size and quality, though rare on the New South Wales coast, becomes abundant in the tropical estuaries of Queensland. It can readily be domesticated and multiplied in tanks or lagoons, and certainly would prove much more worthy of a little care in cultivation than the much vaunted "gourami" (*Osphromenus olfax*).

43. *CHIROCENTRUS DORAB*. Forsk.

Macl. Cat. Fishes Proc. Linn. Soc., N. S. Wales, Vol. 6 p. 263.
Lower Burdekin in salt water.

Dr. Cantor says that this Fish is common in Malacca, where it attains a length of six feet, and is much relished by the natives.

MURÆNIDÆ.

44. *ANGUILLA REINHARDTRI*. Steind.

Macl. Cat. Fishes Proc. Linn. Soc., N. S. Wales, Vol. 6, p. 267.
Mary River and Lillesmere Lagoon.

45. *ANGUILLA MARGINIPINNIS*. n. sp.

Head broad, depressed and rounded in front; the lips are fleshy and form a reflexed fold on the sides; mouth large, the gape extending to a little behind the eye, which is small. Teeth small, in broad flat bands in both jaws, a band on the vomer of about the same size as the maxillary bands, but not quite so long

and tapering behind. The distance from the snout to the gill-opening is very nearly equal to that from the gill-opening to the commencement of the dorsal fin, which is double the distance from thence to the vent. The tail is only a little longer than the body. In a specimen measuring in all thirty-two inches, the distance from the snout to the vent measured fifteen inches, leaving seventeen inches for the tail. Colour dark brown, with the under side of the head and body of a pale yellow; all the fins are narrowly margined with white.

Lillesmere Lagoon. Burdekin.

SCLERODERMI.

46. TRIACANTHUS BIACULEATUS. Bl.

Macl. Cat. Fish Proc. Linn. Soc., N. S. Wales, Vol. 6, p. 308.

Lower Burdekin, salt water.

GYMNODONTES.

47. TETRODON RETICULARIS. Bl.

Gunth. Cat. Fishes, Vol. 8, p. 296.

Lower Burdekin, salt water.

48. TETRODON LÆVIGATUS. L.

Macl. Cat. Fishes Proc. Linn. Soc., N. S. Wales, Vol. 6, p. 336.

Lower Burdekin, salt water.

SIRENOIDEI.

49. CERATODUS FORSTERI. Krefft.

Macl. Cat. Fishes Proc. Linn. Soc., N. S. Wales, Vol. 6, p. 347.

Mary and Burnett Rivers.

Mr. Morton got twelve specimens of this Fish in the Mary, one only in a net, all the others were trapped by the blacks by being forced through a narrow passage in the river formed by a kind of weir of brushwood. A curious circumstance as regards the habits of this fish was noticed by Mr. Morton. At the time of his visit, a number of the *Eucalypti* on the banks of the rivers were in full flower, and the blossoms as they dropped into the water were eagerly seized and swallowed by the *Ceratodus*, and in every specimen which he got, he found the stomach literally crammed with these flowers.

Mr. Morton also ascertained from an old resident and fisherman, that he had observed the *Ceratodus* going in pairs in the months of June, July, and August, that they make slight indentations in the muddy bottom in from six to ten feet depth of water, in which they deposit their spawn; that the male and female seem to remain near the spawn, and are then not easily disturbed; that they frequent the same places every year, and that the spawn much resembles that of a frog. The same informant also says that he has taken the spawn, hatched it in a tub of water, and kept the young alive for some weeks.

TRYGONIDÆ.

50. TRYGON UARNAK. Forsk.

Macl. Cat. Fishes Proc. Linn. Soc., N. S. Wales, Vol. 6, p. 377.
Lower Burdekin, salt water.

51. TRYGON SEPHEN. Forsk.

Gunth. Cat. 8, p. 482.
Lower Burdekin. Salt water.

52. TÆNIURA MORTONI. n. sp.

Disk sub-circular; tail one-half longer than the body, with a broad rayless fin beneath extending to the extremity. Disk in the centre dark brown, covered with close minute spines and with three or four round flattened tubercles in the line of the back on the scapular region. Sides of disk smooth, or finely granular and of a paler colour.

Lower Burdekin. Salt water.

In the foregoing list, I have included all the fishes taken by Mr. Morton within the mouths of the Burdekin and Mary Rivers, but it is evident that numbers of them are purely sea fishes, and have no more right to be classed as belonging to these rivers, than fishes caught in Port Jackson, have to be called Parramatta River fishes. Of the 51 species mentioned, 17 are essentially sea fishes. *Serranus estuarius*, *Diagramma affine*, and *labiosum*, *Gerres filamentosus*, *Scatophagus multifasciatus*, *Chrysophrys hasta*, *Caranx Georgianus* and *compressus*, *Chorinemus lysan* and *toloo*

Equula edentula, *Cybium semifasciatum*, *Chirocentrus dorab*, *Triacanthus biaculeatus*, *Tetrodon reticularis* and *lævigatus*, *Trygon Uarnak* and *Sephen*, *Tæniura Mortoni*. Eleven may be classed as salt-water fishes occasionally ascending rivers into fresh water:—*Lates Darwiniensis*, *Pseudolates cavifrons*, *Polynemus tetradactylus*, *Corvina argentea*, *Platycephalus Mortoni*, *Periophthalmus australis*, *Mugil Waigiensis*, *Engraulis Hamiltoni*, *Clupea Sundaica*, *Elops saurus*, *Chanos salmoneus*. The freshwater fishes occasionally visiting the sea, are seven in number:—*Mugil dobula* and *Ramsayi*, *Chatoëssus Erebi*, and *elongatus*, *Megalops cyprinoides*, *Anguilla Reinhardtii* and *marginipinnis*. The entirely fresh water fishes are fifteen in number:—*Apogonichtys Gillii*, *Oligorus macquariensis*, *Therapon truttaceus*, *percoides*, *longulus*, *fuliginosus* and *parviceps*, *Centropogon robustus*, *Eleotris planiceps*, *Atherinichthys maculatus*, *Neosilurus Hyrtlii*, *Copidoglanis tandanus*, *Arius Australis*, *Belone Krefftii*, *Ceratodus Forsteri*.

NOTES ON THE METHOD OF OBTAINING WATER FROM EUCALYPTUS
ROOTS AS PRACTICED BY THE NATIVES OF THE COUNTRY,
BETWEEN THE LACHLAN AND DARLING RIVERS.

BY K. H. BENNETT, ESQ.

The country situated between the Lachlan and Darling Rivers (in some places nearly 200 miles wide) was until recent years, before its occupation for pastoral purposes, even in ordinary seasons entirely destitute of water for several months in each year, and the natives who formerly claimed and roamed over the country for a distance of forty or fifty miles from the above named rivers, were compelled during the hot dry months to resort to their banks, and remain there until the uncertain rainfall of this region had replenished the shallow swamps and waterholes; but with the scattered tribes or rather families who inhabited the still more arid intermediate portion, and between whom and the river natives a bitter feud existed, the case was different; here